

REMARKS

This is responsive to the Final Office Action that was mailed June 7, 2006 (hereinafter "Office Action") and the Advisory Action that was mailed August 24, 2006.

Claim Amendments

Claim 1 has been amended to incorporate the limitations of claim 2. Support for this amendment can be found in the specification as filed. Claim 2 has been canceled without prejudice. Claims 3 and 4 have been amended to correct their dependency. These amendments do not introduce any new matter into the application.

Claim 11 has been amended to incorporate the limitations of claims 16 and 17. Support for this amendment can be found in the specification as filed. Claims 16 and 17 have been canceled without prejudice. These amendments do not introduce any new matter into the application.

Claim 19 has been amended to incorporate the limitations of claims 24 and 25. Support for this amendment can be found in the specification as filed. Claims 24 and 25 have been canceled without prejudice. These amendments do not introduce any new matter into the application.

Claim 27 has been amended to incorporate the limitations of claim 28. Support for this amendment can be found in the specification as filed. Claim 28 has been canceled without prejudice. Claims 29 and 30 have been amended to correct their dependency. These amendments do not introduce any new matter into the application.

Claim 36 has been amended to incorporate the limitations of claims 37 and 38. Claims 37 and 38 have been canceled without prejudice. Claim 39 has been amended to incorporate the limitations of claim 36. Support for this amendment can be found in the specification as filed. These amendments do not introduce any new matter into the application.

Claims 40-42 have been canceled without prejudice.

Claim 43 has been amended to incorporate the limitations of claims 44 and 45. Support for this amendment can be found in the specification as filed. Claims 44 and 45 have been canceled without prejudice. Claims 46 and 47 have

been amended to correct their dependency. These amendments do not introduce any new matter into the application.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 1, 8, and 43-44 are rejected under 35 U.S.C. §103(a) as being unpatentable over Pittman et al. (U.S. 5,998,968)("Pittman") in view of Uribe et al. (US 6,635,369)("Uribe").

Applicant's previous arguments in response to this rejection are hereby incorporated by reference.

With respect to amended claim 1, and the claims which depend from amended claim 1, amended claim 1 discloses a fuel cell maintenance device that comprises a switch, a pulse generator capable of pulsing a cathode of at least one cell of a fuel cell stack through the switch when the switch is closed, a relay capable of shorting the cell of a fuel cell stack, and a dielectrically isolated driver capable of driving the relay.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman and Uribe, when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe teach using "a relay capable of shorting the cell of a fuel cell stack" as disclosed in amended claim 1. Further, as acknowledged by the Office, neither Pittman nor Uribe teach using a "dielectrically isolated driver" as disclosed in amended claim 1. (Office Action, pp. 4 and 21.) As a result, amended claim 1, and the claims which depend from amended claim 1, is not unpatentable over Pittman in view of Uribe. Reconsideration and withdrawal of the rejection of claim 1 under §103(a) is respectfully requested.

With respect to claim 8, which depends from amended claim 1, claim 8 is believed to be in condition for allowance by virtue of its dependency from amended claim 1, discussed above. Applicant respectfully requests reconsideration and withdrawal of this rejection of claim 8.

With respect to amended claim 43, and the claims which depend from amended claim 43, amended claim 43 discloses a fuel cell maintenance device that comprises means for imposing a low impedance across at least one cell of a fuel cell stack; wherein the low impedance imposing means includes a switch that imposes the low impedance when closed and receiving a pulse from the pulse generator; wherein the switch comprises a relay capable of shorting the cells of a fuel cell stack and a dielectrically isolated driver capable of driving the relay; and a pulse generator capable of pulsing a cathode of the at least one cell of a fuel cell stack through the low impedance imposing means.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman and Uribe, when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe teach using "a relay capable of shorting the cell of a fuel cell stack" as disclosed in amended claim 43. Further, as acknowledged by the Office, neither Pittman nor Uribe teach using a "dielectrically isolated driver" as disclosed in amended claim 43. (Office Action, pp. 17.) As a result, amended claim 43, and the claims which depend from amended claim 43, is not unpatentable over Pittman in view of Uribe. Reconsideration and withdrawal of the rejection of claim 43 under §103(a) is respectfully requested.

Claim 44 has been canceled without prejudice.

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Claims 2-7, 9-42, and 44-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over Pittman et al. ("Pittman") in view of Uribe et al. ("Uribe") in further view of Iino et al. (US 6,313,637)("Iino").

Applicant's previous arguments in response to this rejection are hereby incorporated by reference.

Claim 2 has been canceled without prejudice. Claims 3-7 and 9-10, which depend directly or indirectly from amended claim 1, are believed to be in condition for allowance by virtue of their dependency from amended claim 1, discussed above. Applicant respectfully requests reconsideration and withdrawal of these rejections of claims 3-7 and 9-10.

With respect to amended claim 11, and the claims which depend from amended claim 11, amended claim 11 discloses a fuel cell maintenance device that comprises at least one relay capable of shorting at least one cell of a fuel cell stack; a dielectrically isolated driver capable of driving the relay; a pulse generator capable of pulsing a cathode of the cell through the relay when the dielectrically isolated driver closes the relay to short the cell wherein at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of receiving power returned from the fuel cell stack; and a voltage regulator through which at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of received power returned from the fuel cell stack.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and lino, when considered individually or in combination with one another. In addition to those arguments previously presented, Pittman, Uribe, and lino do not teach or suggest the following elements of amended claim 11: (1) wherein at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of receiving power returned from the fuel cell stack; and (2) a voltage regulator through which at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of received power returned from the fuel cell stack. As a result, amended claim 11 is not unpatentable over Pittman in view of Uribe and further in view of lino. Reconsideration and withdrawal of the rejection of amended claim 11 under §103(a) is respectfully requested.

Claims 16-17 have been canceled without prejudice. Claims 12-15 and 18, which depend directly or indirectly from amended claim 11, are believed to be in condition for allowance by virtue of their dependency from amended claim 11,

discussed above. Applicant respectfully requests reconsideration and withdrawal of these rejections of claims 12-15 and 18.

With respect to amended claim 19, and the claims which depend from amended claim 19, amended claim 19 discloses a fuel cell maintenance device for a fuel cell stack including at least one fuel cell comprising at least one relay electrically connected in parallel across the cell; a dielectrically isolated driver operably associated with the relay to drive the relay; a pulse generator electrically connected to the dielectrically isolated driver to pulse a cathode of the cell through the relay when the dielectrically isolated driver closes the relay; and a power return from the fuel cell stack to at least one of the pulse generator, the relay and dielectrically isolated driver, wherein the power return includes a voltage regulator.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and Iino, when considered individually or in combination with one another. In addition to those arguments previously presented, Pittman, Uribe, and Iino do not teach or suggest the following elements of amended claim 19: (1) a power return from the fuel cell stack to at least one of the pulse generator, the relay and dielectrically isolated driver, and (2) wherein the power return includes a voltage regulator. As a result, amended claim 19 is not unpatentable over Pittman in view of Uribe and further in view of Iino. Reconsideration and withdrawal of the rejection of amended claim 19 under §103(a) is respectfully requested.

Claims 24-25 have been canceled without prejudice. Claims 20-23 and 26, which depend directly or indirectly from amended claim 19, are believed to be in condition for allowance by virtue of their dependency from amended claim 19, discussed above. Applicant respectfully requests reconsideration and withdrawal of these rejections of claims 20-23 and 26.

With respect to amended claim 27, and the claims which depend from amended claim 27, amended claim 27 discloses an apparatus that comprises a fuel stack, including a plurality of cells; a switch bank, including a plurality of

switches, each switch electrically connected in parallel across at least one of the cells; a pulse generator capable of pulsing the cathodes of the cells when the respective switch is closed; a control circuit electrically connected in series between the pulse generator and the switch bank to sequentially open and close the switches; a relay capable of shorting at least one cell of a fuel cell stack; and a dielectrically isolated driver capable of driving the relay.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and lino, when considered individually or in combination with one another. In addition to those arguments previously presented, Pittman, Uribe, and lino do not teach or suggest the following elements of amended claim 27: (1) a relay capable of shorting at least one cell of a fuel cell stack, and (2) a dielectrically isolated driver capable of driving the relay. As a result, amended claim 27 is not unpatentable over Pittman in view of Uribe and further in view of lino. Reconsideration and withdrawal of the rejection of amended claim 27 under §103(a) is respectfully requested.

Claim 28 has been canceled without prejudice. Claims 29-35, which depend directly or indirectly from amended claim 27, are believed to be in condition for allowance by virtue of their dependency from amended claim 27, discussed above. Applicant respectfully requests reconsideration and withdrawal of these rejections of claims 29-35.

With respect to amended claim 36 and amended claim 39, these claims are believed to be in condition for allowance by virtue of their amendments. Claims 37-38 have been canceled without prejudice. Amended claims 36 and 39 are not unpatentable over Pittman in view of Uribe and in further view of lino. Reconsideration and withdrawal of the rejections of amended claims 36 and 39 under §103(a) is respectfully requested.

Claims 40-42 have been canceled without prejudice.

Claims 45-54, which depend directly or indirectly from claim 43, are believed to be in condition for allowance by virtue of their dependency from

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amended claim 43, discussed above. Applicant respectfully requests reconsideration and withdrawal of these rejections of claims 45-54.

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All of the stated grounds of objection and rejection are believed to have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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